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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/862,688	05/22/2001	Dieter Mauer	0275M-260DVB	9681

7590 06/18/2002

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EXAMINER	
OMGBA, ESSAMA	

ART UNIT	PAPER NUMBER
3726	

DATE MAILED: 06/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.	Applicant(s)
09/862,688	Mau et al. r
Examiner	**Art Unit**
Essama Omgba	3726

-- Th MAILING DATE of this communication app ars on the c v r sheet with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on Apr 9, 2002

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-53 is/are pending in the applica

4a) Of the above, claim(s) _____ is/are withdrawn from considera

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-53 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirem

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 4
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 4-7, 9, 12, 13, 15-21, 50 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Speller, Jr. et al. (US Patent 5,829,115) in view of Hatanaka (JP 04169828). With regards to claims 1 and 2, 6, 7, 9, 12, 13, 17-21, 50 and 53, Speller, Jr. et al. discloses an electronic control system for use in a riveting process, the system comprising a rivet and a riveting machine, an electronic control unit, an electric motor connected to the electronic control unit and sensors connected to the electronic control unit and the electric motor, the sensors indicating various characteristics of the electric motor and various riveting characteristics, the electronic control unit being a programmable computer, see column 2, lines 24-31, column 7, lines 20-23 and 42-54 and column 8, lines 17-35. Although Speller, Jr. et al. does not specifically disclose the sensor sensing riveting force as being one of the various characteristics indicated by his sensors, however it is known to use a sensor with a riveting machine to sense a riveting force as attested by Hatanaka, see abstract. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have use a sensor operable to sense riveting force in

Speller, Jr. et al.'s riveting process, in light of the teachings of Hatanaka, in order to provide appropriate riveting force to the joint being made. Applicant should note that Hatanaka provides for comparison of signals out of the sensor at the time of the riveting with magnitudes of stored signals.

For claims 4 and 15, see column 5, lines 23-29 and 49-64 of Speller, Jr. et al.

For claims 5 and 16, see column 8, lines 22-24 of Speller, Jr. et al.

3. Claims 3, 8, 10, 11, 14, 51 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Speller, Jr. et al./Hatanaka as applied to claims 1 and 12 above, and further in view of Gast (US Patent 4,901,431).

With regards to claims 3, 8, and 14, Speller, Jr. et al./Hatanaka discloses an electronic control system as shown above except for a rivet feeder connected to the electronic control unit, a feed tube sensor wherein the rivet size is sensed by the sensor and an articulating robot attached to and positioning the riveting machine. However Gast teaches such rivet feeder and robot, see columns 13 and 14. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have incorporated a rivet feeder and an articulating robot to the system of Speller, Jr. et al./Hatanaka, in light of the teachings of Gast, in order to facilitate transfer of the rivet and enhance the rivet installation process.

For claims 10 and 11, Applicant should note that the choice of appropriate sensors is well within the general knowledge of one of ordinary skill in the art.

For claims 51 and 52, Applicant should note Gast electrical control unit transmits error signals and stops the rivet process if an undesired condition is present.

4. Claims 22-30, 33, 34, 43, 44, are rejected under 35 U.S.C. 103(a) as being unpatentable over Speller, Jr. et al. (US Patent 5,829,115) in view of Cotterill et al. (US Patent 5,752,305). With regards to claims 22-26, 29, 30, 33, 34, 43, and 44, Speller, Jr. et al. discloses an electronic control system for use in a riveting process, the system comprising a rivet and a riveting machine, an electronic control unit, an electric motor connected to the electronic control unit and sensors connected to the electronic control unit and the electric motor, the sensors indicating various characteristics of the electric motor and various riveting characteristics, the electronic control unit being a programmable computer, see column 2, lines 24-31, column 7, lines 20-23 and 42-54 and column 8, lines 17-35. Speller, Jr. et al. does not disclose the rivet as being a self-piercing rivet operably driven by a punch as controlled by an electrical control unit, and a die operably diverging an end of the rivet without the rivet piercing completely through the exterior surface of a die-side workpiece adjacent the die, the die acting with a substantially relatively stationary die, the rivet being of a hollow and diverging type with a solid head. However Cotterill et al. teaches such rivet, punch and die assembling, see column 2, lines 27-49 and figures 1-3. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have incorporated the control system of Speller, Jr. et al. with the rivet and die system of Cotterill et al., in order to improve the riveted joint produced.

For claim 27 and 28, Applicant should note that the position of the electric motor is an obvious matter of design choice.

5. Claims 31, 32, 35-42, 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Speller, Jr. et al./Cotterill et al. as applied to claims 22, 34 and 43 above, and further in view of Gast (US Patent 4,901,431).

With regards to claims 35-40, 45 and 46, Speller, Jr. et al./Cotterill et al. discloses an electronic control system as shown above except for a rivet feeder connected to the electronic control unit, a feed tube sensor wherein the rivet size is sensed by the sensor and an articulating robot attached to and positioning the riveting machine. However Gast teaches such rivet feeder and robot, see columns 13 and 14. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have incorporated a rivet feeder and an articulating robot to the system of Speller, Jr. et al./Cotterill et al., in light of the teachings of Gast, in order to facilitate transfer of the rivet and enhance the rivet installation process.

For claims 31, 32, 41, and 42, Applicant should note that Gast electrical control unit transmits error signals and stops the rivet process if an undesired condition is present.

For claim 47, the use of an endless belt is an obvious matter of design choice that is equivalent to Speller, Jr. et al.'s reduction gears mechanism.

6. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Speller, Jr. et al. in view of Hatanaka and Gast.

Speller, Jr. et al. discloses an electronic control system for use in a riveting process, the system comprising a rivet and a riveting machine, an electronic control unit, an electric motor connected to the electronic control unit and sensors connected to the electronic control unit and the electric motor, the sensors indicating various characteristics of the electric motor and various riveting characteristics, the electronic control unit being a programmable computer, see column 2, lines 24-31, column 7, lines 20-23 and 42-54 and column 8, lines 17-35. Speller, Jr. et al. does not disclose the sensor operable to indicate a riveting force, a rivet feeder connected to the electronic control unit, a feed tube sensor wherein the rivet size is sensed by the sensor and an articulating robot attached to and positioning the riveting machine. However it is known to use a sensor with a riveting machine to sense a riveting force as attested by Hatanaka, see abstract. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have use a sensor operable to sense riveting force in Speller, Jr. et al.'s riveting process, in light of the teachings of Hatanaka, in order to provide appropriate riveting force to the joint being made. Gast on the hand teaches such rivet feeder and robot, see columns 13 and 14. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have incorporated a rivet feeder and an articulating robot to the system of Speller, Jr. et al./Hatanaka, in light of the teachings of Gast, in order to facilitate transfer of the rivet and enhance the rivet installation process.

7. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Speller, Jr. et al./Hatanaka/Gast as applied to claim 48 above, and further in view of Cotterill et al.

Speller, Jr. et al./Hatanaka/Gast teaches a control system as shown above except for the rivet having a solid head and a diverging open end which does not completely penetrate a workpiece farthest from the head. However Cotterill et al. teaches such rivet, see figures 1-3. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used the rivet of Cotterill et al, in Speller, Jr. et al./Hatanaka/Gast's control system in order to avoid unevenness in the thickness of the sheet material encapsulating the rivet.

Response to Arguments

8. Applicant's arguments with respect to claims 1-53 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR

1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

References

10. The prior art references listed on the enclosed PTO-892, but not used in a rejection of the claims, are pertinent to Applicant's disclosure.

Contact Information

11. Official documents related to the instant application may be submitted to the Technology Center 3700 mail center by facsimile at (703) 305-3579/3580. Should Applicant desire to submit a DRAFT response to the Examiner by facsimile transmission, then Applicant should contact the Examiner at the number below for instructions concerning the transmission of DRAFT documents. Applicant is reminded to clearly mark any facsimile transmission as "DRAFT" if it is not to be considered as an official response.

12. Any inquiry concerning this communication should be directed to Examiner Essama Omgba at telephone number (703) 305-2915.

S. THOMAS HUGHES
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700

eo ED
June 16, 2002